REMARKS

Reconsideration and allowance of the subject application are respectfully requested. By this Amendment, Applicant has canceled claim 27. Thus, claims 1-26, 28 and 29 are now pending in the application. In response to the Office Action (Paper No. 8), Applicant respectfully submits that the pending claims define patentable subject matter. By this Amendment, Applicant has amended claims 1-26, 28 and 29 to improve clarity.

I. Preliminary Matters

Claims 1 and 26 are objected to because the Examiner maintains that "CTI" should be changed to "Computer Telephony Integration (CTI"). Claim 27 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because the Examiner maintains that the limitation "as mentioned" is indefinite. By this Amendment, Applicant has amended claims 1 and 26 as suggested by the Examiner and canceled claim 27. Accordingly, the Examiner is requested to remove the objection to claims and the § 112, second paragraph, rejection.

Claims 6-13 and 15-23 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form. However, Applicant respectfully requests the Examiner to hold in abeyance the rewriting of these claims until the Examiner has had the opportunity to reconsider the rejected parent claims in light of the arguments presented below in support of the Applicant's traverse of the rejection.

II. The Present Invention

The present invention is directed to an interface between a public network switch and a Computer Telephony Integration (CTI) server. The interface is adapted to communication between a service switching function device of the network switch and the CTI server in order to provide a universal bridge between the public network domain and the CTI domain.

As shown in Figure 2, an interface means includes a CTI call handling device CTICH and a mapping device MD. Call handing messages CTICHIN are provided by the CTI server means CTS to a first selection means SM1 of the call handling device CTICH which determines which call service scenarios is to be performed on the calls associated with the call handling messages CTICHIN. The CTI call handling device CTICH is adapted to generate, upon performing the CTI call service scenario, a CTI call handling message is generated for delivery to the CTI server means, and a service request control message SCRM1 for delivery towards the service switching function device SSF within the network switch SSP.

The mapping device MD receives from the service switching function device (SSF) within the network switch SSP a public switching call handling message PSCHin, and performs on a call associated with the public switching call handling message PSCHIN a public switching call service scenario SCEN1. Further, the mapping device MD is adapted to generate, upon performing the public switching call service scenario SCEN1, a returning public switching call handling message PSCHOUT1 for delivery to the service switching function device SSF within said network switch SSP, and a control message CM1 for delivery towards the CTI server means CTS.

III. Rejection of claims 1-5, 14 and 24-29

A. Disclosure of Lindeberg et al.

Lindeberg et al. (USP 6,094,479; hereafter "Lindeberg") is directed to a CTI gateway provided between a public intelligent network (IN) including an IN service control element and an IN switching control element, and a customer premise equipment (CPE)-based private network including a CTI server.

As shown in Figure 1, a public telecommunications network 100 includes an intelligent network 200, a CTI gateway 211, and a media server 225. A CPE private communications network 202 includes a plurality of customer domains 250, 260, and 270 that belong to the same business, organization, or other customer. Customer domains 260 and 270 include a plurality of telephone devices connected to the public telecommunications network 200 at a service switching point 241, and a plurality of operator workstations connected to a private data communication network 254 that connects computers in all three of the customer domains 260, 270, and 250. Customer domain 250 includes a CTI server 251.

The intelligent network 200 includes a service control point 231 having a service control function 232 and one or more logical devices (LD). The service control point 231 is connected to service switching points (SSP) 241 and 245 including service switching functionality (SSF) 242, 246, call control functions (CCFs) 243 and 247, and call control access functions (CCAFs) 244 and 248.

The service control elements in both networks, i.e., the SCP 231 and the CTI server 251, are connected by way of a CTI gateway 211. The SCP 231 communicates with the CTI gateway 211 over an "extended" INAP interface 284. On the other side of the gateway, the CTI interface 285 is based on a different, computer-based, data communications network level protocol using the standard transaction capability part (TCAP) which may be carried over a signaling system 7 network or any other suitable underlying protocol such as TCP/IP, which supports a CTI applications protocol like CSTA. The extended INAP interface 284 employs cooperative call processing procedures wherein a logical relationship is established over an end-to-end service logic communications path between the service logic in the SCP 231 and the service logic in the CTI gateway 211 using a small set of operations. With that set of operations, the CTI gateway requests a service feature to be performed by the SCP. A service feature request is made using a Start operation coupled with a specific service feature request argument and corresponding data attributes for the specific service feature argument. When the Start operation is transmitted by the service control logic of the CTI gateway 211 to the SCP 231, the SCP 231 communicates that request to the appropriate SSP. The SCP 231 also returns a Continue operation coupled with a specific service feature result argument. After the service feature result is returned, a determination is made if further servicing is needed to provide the requested service feature. If so, a Continue operation coupled with an appropriate argument is transmitted. Otherwise, a Stop operation is used to logically complete the requested service feature. The operation procedures also include an Event operation coupled with a specific service feature event argument for transmitting one or more events that the other network's service logic is to take into account

when providing the requested service feature. The client/server model of communications between the SCP and the CTI gateway is symmetric such that the SCP may function as a client sending service requests, and the CTI gateway may function as a server.

When viewed from the public intelligent network, the CTI gateway 211 "appears" to be providing additional service control functionality to the service logic in the SCP 231. Alternatively, when viewed from the CTI server 251, the CTI gateway 211 "appears" to be providing switching functionality for the computing function 253 in the CTI server. In effect, the CTI gateway 211 receives and translates service requests from both interfaces so that they can be conveyed to the other network's service logic. The CTI gateway 211 includes a switching-control coordination function (SCCF) 213. To coordinate switching in the public telecommunications network for the private communications network 202. The SCCF also coordinates user interactions performed by the specialized resource function either in the intelligent peripheral 221 or in the media server 225. The CTI gateway 211 also includes an automatic call distribution (ACD) function for distributing incoming calls to agents within a particular business, organization, or other group.

As shown in Figure 2, when the CTI gateway 211 receives a service request (in this case a switching request) from the CTI server 251 in the computing domain of the CPE-based private communications network 202 (block 302). The CTI gateway converts the service request from a computer-based protocol (CSTA, TAPI, TSAPI, etc.) into an IN protocol format and conveys the converted message to the IN service logic element, e.g., the SCP, in the public communications domain (block 304). Whenever a service is requested by the CTI server 251, the CTI gateway

211 establishes a logical communications link with the CTI gateway functioning as a converting/conveyance mechanism. A response from the intelligent network to the service request or other events relevant to the service request is transmitted over the extended INAP interface 284 (block 306) and converted in the CTI gateway 211. More specifically, the CTI gateway 211 converts the response/event from an IN-based protocol format into a CTI protocol format and conveys the converted message to the CTI server 251 (block 308). The CTI gateway 211 maintains a status table for each device being monitored in various service applications such that in the virtual private network (VPN), the CTI gateway 211 monitors and maintains the status of devices in that VPN and informs the CTI server 251 as required of any change in status (block 310).

B. Analysis

Claims 1-5, 14 and 24-29 are rejected under 35 U.S.C. § 102(e) as being anticipated by Lindeberg. Applicant respectfully traverses the prior art rejection.

Independent claim 1 recites, in part, "an interface device (IM) coupled between a network switch (SSP) and a computer telephony integration (CTI) server means (CTS), said interface device (IM) being adapted to communicate between a service switching function device (SSF) having a service switching functionality and included within said network switch (SSP) and said CTI server means (CTS)." Independent claim 26 recites similar limitations.

The Examiner maintains that Lindeberg (Figure 1) discloses all of the features of independent claims 1 and 26 including the claimed interface device/means via the CTI gateway 211.

However, Lindeberg's CTI gateway 211 is not coupled between a network switch and a CTI server means or adapted to communicate between a service switching function device included in the network switch and the CTI server means, as required by claims 1 and 26. Rather, the CTI gateway 211 is coupled between a CTI server 251 and a service control point 231 having a service control function 232. That is, an important difference between the Lindeberg patent and present invention as recited in claims 1 and 26 is that in the present invention the interface means communicates between a service switching function and the CTI server as opposed to the communication between the service control function and the CTI server which is performed by the Lindeberg patent. The service switching functions and service control functions are two separate entities with fundamental differences within the (standardized) intelligent network (IN) architecture. A service switching function resides in a switch, whereas a service control function generally resides in a server (a computer). This also becomes clear from Figure 1 of the Lindeberg patent where all "normal" CPE telephony equipment is also coupled to this "switch" , service switching point (SSP) 245. Basic principles of intelligent networks are briefly mentioned in the Lindeberg patent at column 6, line 61 through column 7, line 10.

Although the higher-level aim of the present invention may be similar to that of the Lindeberg patent, the way of realizing it is fundamentally different. That is, the Lindeberg system could be considered as an alternative solution for providing an interface between and intelligent network and CTI, but the systems of Lindeberg and the present invention immediately differ in implementation philosophy, namely the devices within the intelligent network which both interfaces are communicating with.

Moreover, Applicant respectfully submits that the Lindeberg patent can not be considered as an "equivalent" to the present invention since the functionality of the interface means of the present invention and the CTI gateway of the Lindeberg patent are completely different, i.e., by means of the fact that the interface means of the present invention and the CTI gateway of the Lindeberg patent are interfacing with different entities within an intelligent network. As discussed in detail in the present application, the present invention is directed to interfacing between a network switch and a CTI server, rather than between a service control function and a CTI server (this may also become more clear from the wording of the devices: "interface" device of the present invention vs. the "gateway" (at service level) of Lindeberg).

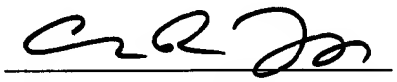
Accordingly, Applicant respectfully submits that independent claims 1 and 26, as well as dependent claims 2-5, 14, 24, 25, 28 and 29, would not have been anticipated by or rendered obvious in view of Lindeberg because the applied reference does not teach or suggest all of the features of the claims.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 27 is canceled.

The claims are amended as follows:

1. (Amended) [Interface means] An interface device (IM) coupled between a network switch (SSP) and a [CTI] computer telephony integration (CTI) server means (CTS), [characterized in that] said interface [means] device (IM) [is] being adapted to communicate between a service switching function device (SSF) having a service switching functionality and included within said network switch (SSP) and said CTI server means (CTS).

2. (Amended) [Interface means] The interface device (IM) according to claim 1 [characterized in that] , wherein said interface [means] device (IM) [further] includes a CTI call handling device (CTICH) adapted to receive from said CTI server means (CTS) a CTI call handling message (CTICHIN), and to perform on a call associated with said CTI call handling message (CTICHIN) at least one CTI call service scenario (CSCEN1).

3. (Amended) [Interface means] The interface device (IM) according to claim 2 [characterized in that] , wherein said CTI call handling device (CTICH) is further adapted to generate, upon performing said at least one CTI call service scenario, at least one returning CTI call handling message (CTICHOUT2) for delivery to said CTI server means [(CTC)] (CTS).

4. (Amended) [Interface means] The interface device (IM) according to claim 2 [characterized in that] , wherein said CTI call handling device (CTICH) is further adapted to generate, upon performing said at least one CTI call service scenario (CSCEN1), at least one service request control message (SCRM1) for delivery towards said service switching function device (SSF) within said network switch (SSP).

5. (Amended) [Interface means] The interface device (IM) according to claim 1 [characterized in that] , wherein said interface [means] device (IM) [further] includes a mapping device (MD) adapted to receive from said service switching function device (SSF) within said network switch (SSP) a public switching call handling message (PSCHin), and to perform on a call associated with said public switching call handling message (PSCHIN) at least one public switching call service scenario (SCEN1).

6. (Amended) [Interface means] The interface device (IM) according to claim 5 [characterized in that] , wherein said mapping device (MD) is further adapted to generate, upon performing said at least one public switching call service scenario (SCEN1), at least one returning public switching call handling message (PSCHOUT1) for delivery to said service switching function device (SSF) within said network switch (SSP).

7. (Amended) [Interface means] The interface device (IM) according to claim 5

[characterized in that] , wherein said mapping device (MD) is further adapted to generate, upon performing said at least one public switching call service scenario (SCEN1), at least one control message (CM1) for delivery towards said CTI server means (CTS).

8. (Twice Amended) [Interface means] The interface device (IM) according to claim 5 [characterized in that] , wherein said CTI call handling device (CTICH) is further adapted to receive from said mapping device (MD) a mapping device message (CM1;CMn+1), and to perform, on a particular call associated to said mapping device message, at least one other CTI call service scenario (CSCENI + 1; CSCENI + k).

9. (Amended) [Interface means] The interface device (IM) according to claim 8 [characterized in that] , wherein said CTI call handling device (CTICH) is further adapted to generate, upon performing said at least one other CTI call service scenario (CSCENI+l;CSCENI+k), at least one other returning CTI call handling message (CTICHOUT1 ;CTICHOUT1') for delivery to said CTI server means [(CTC)] (CTS).

10. (Amended) [Interface means] The interface device (IM) according to claim 8 [characterized in that] , wherein said CTI call handling device (CTICH) is further adapted to generate, upon performing said at least one other CTI call service scenario (CSCENI+ 1), at least one other service request control message (SCRMI+1) for delivery towards said mapping device (MD).

11. (Twice Amended) [Interface means] The interface device (IM) according to claim 5 [characterized in that] , wherein said mapping device (MD) is further adapted to receive from said CTI call handling device, a CTI call handling device message (SCRM1; SCRMI+1), and to perform on a specific call associated to said CTI call handling device message (SCRM1; SCRMI+1), at least one other public switching call service scenario (SCENn+1; SCENn+m).

12. (Amended) [Interface means] The interface device (IM) according to claim 11 [characterized in that] , wherein said mapping device (MD) is further adapted to generate, upon performing said at least one other public switching call service scenario (SCENn+1; SCENn+m), at least one other returning public switching call handling message (PSCHOUT3; SCHOUT3') for delivery towards said service switching device (SSF).

13. (Amended) [Interface means] The interface device (IM) according to claim 11 [characterized in that] , wherein said mapping device (MD) is further adapted to generate, upon performing said at least one other public switching call service scenario (SCENn+1), at least one other control message (CMn+1) for delivery towards said CTI call handling device (CTICH).

14. (Amended) [Interface means] The interface device (IM) according to claim 2

[characterized in that] , wherein said CTI call handling device (CTICH) is further adapted to

- determine the value of the CTI call attributes of said call, upon receiving said CTI call handling message (CTICHIN)
- determine at least one updated value of the CTI call attributes of said call, upon performing said at least one CTI call service scenario (CSCEN1).

15. (Amended) [Interface means] The interface device (IM) according to claim 5 [characterized in that] , wherein said mapping device (MD) is further adapted to

- determine the value of the public switching call attributes of said call, upon receiving said public switching call handling message (PSCHIN)
- determine at least one updated value of the CTI call attributes of said call, upon performing said at least one public switching call service scenario (SCEN1).

16. (Amended) [Interface means] The interface device (IM) according to claim 8 [characterized in that] , wherein said CTI call handling device (CTICH) is adapted to

- determine the value of the CTI call attributes of said particular call, upon receiving said mapping device message
- determine at least one updated value of the CTI call attributes of said particular call, upon performing said at least one other CTI call service scenario.

17. (Amended) [Interface means] The interface device (IM) according to claim 11 [characterized in that] , wherein said mapping device (MD) is further adapted to

- determine the value of the public switching call attributes of said specific call, upon receiving said CTI call handling device message

- determine at least one updated value of the public switching call attributes of said specific call, upon performing said at least one other public switching call service scenario.

18. (Amended) [Interface means] The interface device (IM) according to claim 14 [characterized in that] , wherein

said CTI call handling device (CTICH) is further adapted to receive from said CTI server means (CTS) a succession of incoming CTI call handling messages including said CTI call handling message (CTICHIN),

said CTI call handling device (CTICH) further includes first selection means (SM1) adapted to receive an incoming CTI call handling message of said succession, and to forward said incoming CTI call handling message to a CTI call service scenario device of a first plurality of CTI call service scenario devices (CSCEN1,...,CSCENI) included within said CTI call handling device (CTICH), each of said CTI call service scenario devices of said first plurality being adapted to perform a distinct CTI call service scenario,

said CTI call service scenario device of said first plurality is thereby selected by said first selection means (SM1) based upon at least one value of the CTI call attributes of the call associated to said incoming CTI call handling message.

19. (Amended) [Interface means] The interface device (IM) according to claim 15 [characterized in that] , wherein

said mapping device (MD) is further adapted to receive from said service switching function device (SSF), a succession of incoming public switching call handling messages including said public switching call handling message (PSCHIN),

said mapping device (MD) further includes second selection means (SM2) adapted to receive an incoming public switching call handling message of said succession, and to said incoming public switching call handling message to a public switching call service scenario device of a second plurality of public switching call service scenario devices (SCEN1,...,SCENn) included within said mapping device, each of said public switching call service scenario devices of said second plurality being adapted to perform a distinct public switching call service scenario,

said public switching call service scenario device of said second plurality is thereby selected by said second selection means (SM2), based upon at least one value of the public switching call attributes of the call associated to said incoming public switching call handling message.

20. (Amended) [Interface means] The interface device (IM) according to claim 16 [characterized in that] , wherein

said CTI call handling device (CTICH) is further adapted to receive a succession of incoming mapping device messages including said mapping device message,

said CTI call handling device (CTICH) further includes a third selection means (SM3) adapted to an incoming mapping device messages of said succession, and to forward said mapping device message to a CTI call service scenario device of a third plurality of CTI call service scenario devices (CSCENI+1,...,CSCENI+k) included within said CTI call handling device (CTICH), each of said CTI call service scenario devices of said third plurality being adapted to perform a distinct CTI call service scenario,

said CTI call service scenario device of said third plurality is thereby selected by said third selection means (SM3) based upon at least one value of the CTI call attributes of the call associated to said incoming mapping device message.

21. (Amended) [Interface means] The interface device (IM) according to claim 17 [characterized in that] , wherein

said mapping device (MD) is further adapted to receive a succession of incoming CTI call handling device messages, including said CTI call handling device message,

said mapping device (MD) further includes fourth selection means (SM4) adapted to receive an incoming CTI call handling device message of said succession and to forward said CTI call handling device message to a public switching call service scenario device of a fourth plurality of public switching call service scenario devices (SCENn+1,...,SCENn+m) included

within said mapping device, each of said public switching call service scenario devices of said fourth plurality being adapted to perform a distinct public switching call service scenario,

said public switching call service scenario devices of said fourth plurality is thereby selected by said fourth selection means (SM4), based upon at least one value of the public switching call attributes of the call associated to said incoming CTI call handling device message.

22. (Twice Amended) [Interface means] The interface device (IM) according to claim 20 [characterized in that] , wherein the CTI call service scenario's performed by the CTI call service scenario devices of said first plurality are substantially different from the CTI call service scenario's performed by the CTI call service scenario devices of said third plurality.

23. (Twice Amended) [Interface means] The interface device (IM) according to claim 21 [characterized in that] , wherein the public switching call service scenario's performed by the public switching call service scenario devices of said second plurality (SCEN1,..., SCENn) are substantially different from the public switching call service scenario's performed by the public switching call service scenario devices of said fourth plurality (SCENn+1,...,SCENn+m).

24. (Amended) [Interface means] The interface device (IM') according to claim 1 [characterized in that] , wherein said interface [means] device (IM') is adapted to communicate between a plurality of service switching function devices (SSF, SSF1 , SSF2,

SSF3) including said service switching function device (SSF), and said CTI server means (CTS) , each of said service switching function devices having a service switching functionality.

25. (Amended) [Interface means] The interface device (IM') according to claim 1 [characterized in that] , wherein said interface [means] device (IM') is adapted to communicate between said service switching function device (SSF) and a plurality of CTI server means (CTS, CTS1, CTS2), including said CTI server means (CTS).

26. (Amended) [Apparatus] An apparatus (A) for providing a service to at least one customer (C), said apparatus [including] comprising:

a computer telephony integration (CTI) server means (CTS);

a network switch (SSP) [which is coupled to a computer including a CTI server means (CTS), said CTI server means (CTS) being coupled via] including a service switching function device (SSF) having a service switching functionality;

an application programming interface (API) coupling said CTI server means (CTS) to an executable means (EM1,...,EM5), said executable means being adapted to execute said service [characterized in that said apparatus (A) further includes]; and

interface means (IM) coupled between said network switch (SSP) and said CTI server means (CTS), said interface means (IM) being adapted to communicate between [a] said service switching function device (SSF) [having a service switching functionality and included within] of said network switch (SSP)[,] and said CTI server means (CTS).

28. (Amended) [Apparatus] The apparatus according to claim 26

[characterized in that] , wherein said apparatus further [includes] comprises at least one other service switching function device (SSF1, SSF2, SSF3) having a service switching functionality and being coupled to said interface means (IM').

29. (Amended) [Apparatus] The apparatus according to claim 26

[characterized in that], wherein said apparatus further [includes] comprises at least one other CTI server means (CTS1, CTS2) coupled to said interface means (IM').